

Notice of Allowability

Application No.

10/718,725

Examiner

Margaret G. Moore

Applicant(s)

OKUHIRA ET AL.

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to preliminary amendment filed 11/24/03.
2. ☒ The allowed claim(s) is/are 16 to 19, 23.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. 09/155,097.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Art Unit: 1712

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Arthur Garrett on 4/22/05.

The application has been amended as follows:

Please cancel claims 20 to 22.

In the specification, under Related Applications, please insert "now 6,756,466" after "10/291,601,".

2. The following is an examiner's statement of reasons for allowance:

The amendment above cancels claims drawn to a different invention, as noted in the restriction requirement in parent application 09/155,097. Applicants had indicated that these claims were "withdrawn" in the amendment dated 11/24/03, but did not cancel them. These claims are the subject of US application 10/822,786. The Examiner's amendment also updates that status of the parent application.

The instant claims are neither taught nor suggested by the prior art. A key feature of claims 16 and 18 is the requirement that alkoxy, epoxy and ketimine groups are bonded to Si atoms. Another key feature of claim 16 is that the method requires reacting aminosilane with the epoxysilane and ketone under heating.

It is well known in the art that amine groups, i.e. aminosilanes, undergo reaction with epoxy groups, i.e. epoxysilanes. In fact aminosilanes are known curing agents for epoxies. In addition, it is known to "block" amine groups on aminosilanes by reacting them with ketones to form a ketimine functional silane that will not react with epoxy groups, in the absence of external moisture or heat. Such "blocking" produces water which will hydrolyze alkoxy silane groups, resulting in an SiOH functionalized silane or the resulting condensation product. Thus it is surprising and unexpected that one would or could react an aminosilane and an epoxysilane in the presence of heat and a ketone and result in a silicone having ketimine groups (the reaction product of ketones and

Art Unit: 1712

amines rather than the reaction product of epoxy and amine) and alkoxy groups (i.e. not hydrolyzed by the water resulting from ketimine formation).

Various references are cited as showing that which is known in the art.

Stein et al. shows the known reaction between Si-amines and Si-epoxy groups when heated. See columns 2 and 3. This demonstrates the reaction that one would have expected to occur when heating and stirring an aminosilane and epoxysilane. Instead, in the instant method, the amino groups undergo reaction with the ketone rather than the epoxy.

Koda et al. teach reacting aminosilanes and epoxysilanes and suggest doing so in the presence of a ketone solvent, but there is nothing to suggest the formation of a silicone having alkoxy, epoxy and ketimine groups. As found on the bottom of column 8, the alkoxy groups condense and an addition reaction occurs between the amine and epoxy groups.

Treadway '760 teaches a partial hydrolysis of an aminosilane, subsequently reacted with a ketone to form a ketimine, mixed with a partial hydrolysis of an epoxy-silane. This mixture, however, does not undergo "bodying" and cures. As such one never obtains a silicone compound having alkoxysilyl groups. See examples 1 to 3.

Foscante et al. detail a reaction between ketone and aminosilane and the formation of ketimine, and the fact that water formed from this reaction will cause alkoxysilane condensation. The ketimine silane is then admixed with an epoxy silane. See column 9, lines 18 and on. Treadway et al. '250 also teach the reaction between a ketimine and aminosilane, followed by the subsequent addition of an epoxysilane. Both these compositions undergoes curing upon mixing, including both alkoxy condensation cure and epoxy/amine addition cure, and fail to teach or suggest the isolation of silicone having each of the required groups.

Thus the requirements of independent method claim 16 are neither taught nor suggested by the prior art. In addition there is nothing to believe that a silicone having the required functional groups is formed by any other process (addressing the fact that claim 18 is a product by process type claim). Claims 16 to 19 and 23 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret G. Moore whose telephone number is 571-272-1090. The examiner can normally be reached on Monday to Wednesday and Friday, 10am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Margaret G. Moore
Primary Examiner
Art Unit 1712

mgm
4/22/05